

REMARKS

Applicants are filing this Amendment and Response under 37 CFR §1.116 in response to the Examiner's final rejection of Claims 2,3, 5, 48-51 under the 35 U.S.C. §102(b) and Claims 1,4, 7-9, 11-13, 16-18 and 20 under 35 U.S.C. §103(a).

Remarks

Claim Objections

The Examiner has noted the omission of Applicants' Claim 7 and has objected to the numbering of the claims under 37 CFR 1.126.

The Examiner has renumbered the misnumbered Claims 8-58 with Claims 7-51.

Applicants apologize for the omission of Claim 7 from Applicants' response filed September 29, 2006 and thank the Examiner for renumbering the claims. Applicants also note that the Office Action of December 7, 2006 refers to renumbered Claims 1-57.

In this response Applicants are using the Examiner's claim numbering.

The Rejections

Claim rejections under 35 U.S.C. §102(b)

Claims 2, 3, 5, 48-51 are rejected under 35 U.S.C. §102(b) as being anticipated by Vaughan (U.S. 4,218,328).

Applicants' cancellation of 2, 3, 5, 48-51 obviates the Examiner's rejection under 35 U.S.C. §102(b).

Claim rejections under 35 U.S.C. §103(a)

Claims 1, 4, 7-9, 11-13, 16-18 and 20 under 35 U.S.C. §103(a) as being unpatentable over Smrcka et al. (U.S. 5,370,805) in view of Wollenberg (U.S. 4,803,002).

The examiner has incorporated by reference paragraph 10 of the office action mailed June 23, 2006 to set forth the rejection.

Examiner's Response to Arguments

In the Examiner's response to Applicants' arguments the examiner has stated:

Applicant's arguments regarding Nichols et al. (U.S. 5,173,203) and Farnig et al. (U.S. 5,207,939) have been considered, but they are moot in view of the discontinuation of the use of these references against the present claims.

Applicants' arguments filed September 29, 2006 have been fully considered but, with the exception to Nichols et al. and Farnig et al., they are not persuasive.

Specifically, applicants argue that Vaughan is not a relevant reference against the present claims given that Vaughan does not disclose process for producing Group II metal carbonated overbased Mannich condensation product having sulfur content less than 0.3 % as measured by ASTM Test No. 4951-92 as now required in present claims 2-3, 5 and 48-51 against which Vaughan is applied. Applicants argue that Vaughan discloses that it "is preferred that the reaction takes place in the presence of chalcogen" such as carbon sulfide, carbon oxysulfide, and sulfur dioxide.

However, it is significant to note that Vaughan discloses that the chalcogen reaction is not an essential reactant and that the preferred chalcogen is carbon dioxide. Thus, it is clear that the use of carbon sulfide, carbon oxysulfide, and sulfur dioxide is not required in Vaughan. Further, attention is drawn to col. 4, line 6 of Vaughan that discloses that the "composition is not sulfurized." Additionally, page 19, lines 1-13 of the present specification discloses that the sulfur content is present in Group II metal overbased sulfurized alkylphenols and in the diluent oil used for making the Group II carbonated overbased Mannich condensation products of alkyl phenols.

However, it is noted that there is no disclosure in Vaughan that the Mannich condensation product of alkylphenol is sulfurized. Further, there is no disclosure in Vaughan (col. 6, lines 5-23) that the lubricating oil comprises sulfur.

In light of the above, and absent evidence to the contrary, it is the Examiner's position that the product of Vaughan does possess less than 0.3% sulfur as required in each of present Claim 2 and present Claim 48.

Applicants argue that there is no motivation to combine Smrcka et al. with Wollenberg given that Wollenberg utilize alkylene carbonate in different way than the present invention. Applicants argue that the product of Wollenberg is different than the presently claimed product, i.e. Group II metal carbonated overbased Mannich condensation product of alkyl phenol. As evidence to support this position, applicants point to col. 6, lines 56-59 and col. 8, lines 13-14 of Wollenberg that disclose that the alkylene carbonate is used to functionalize the

nitrogen on the Mannich base to make it a carbamate and to the structure of the presently claimed product as set forth on page 18, lines 19-24 of the present specification and argue that the structures are different.

It is noted that Smrcka et al. disclose process for making calcium Mannich alkyl phenol which comprises forming a reaction mixture by combining (i) Mannich condensation product of alkyl phenol formed by reacting alkyl phenol, paraformaldehyde, and amine, (ii) lime, i.e. calcium oxide, and (iii) ethylene glycol, i.e. promoter, however, there is no disclosure in Smrcka et al. of alkylene carbonate as presently claimed. This is why Smrcka et al. is used in combination with Wollenberg that discloses reacting alkylene carbonate with Mannich condensation product as presently claimed and disclosed by Smrcka et al.

Applicants argue that Wollenberg disclose product (col. 6, lines 56-59 and col. 8, lines 13-44) different than that of the present invention (page 18, lines 19-24 of the present specification).

However, on the one hand, cited portion of Wollenberg does not react the alkylene carbonate with the product disclosed by Smrcka et al. This is, Smrcka et al. disclose product obtained by combining (i) Mannich condensation product of alkyl phenol formed by reacting alkyl phenol, paraformaldehyde, and amine, (ii) lime, i.e. calcium oxide, and (iii) ethylene glycol, i.e. promoter while the portion of Wollenberg pointed to by applicants disclose reacting alkylene carbonate with nitro-containing dispersant. While Wollenberg disclose reacting cyclic carbonate with Mannich base, there is no explicit disclosure of structures that result from such reaction.

Further, on the other hand, with respect to the structure as set forth in the present specification, it is noted that page 18, lines 19-24 of the present specification disclose that the structure is "one possible" chemical structure of the Group II metal carbonated overbased product of the carbonation step. Thus, it appears that other structures are possible. It is not clear that the product such as disclosed by Wollenberg is not produced in the present invention.

Given that the combination of Smrcka et al. with Wollenberg disclose process as presently claimed including reacting alkylene carbonate and Mannich condensation product of alkyl phenol as presently claimed, it is not clear why the product of the present invention is different than the

product of the process by combination of Smrcka et al. with Wollenberg.
Clarification is requested.

In response to the Examiner's request for clarification of why the product of the present invention is different from the product of the process by combination of Smrcka et al. with Wollenberg, Applicants offer the following reasons:

Wollenberg is preparing carbamates by functionalizing the amino group. The use of the alkylene carbonate in Wollenberg is not being used to make the Group II metal carbonated, overbased Mannich condensation product of the present invention. Neither Smrcka et al. nor Wollenberg teach use of the alkylene carbonate to carbonate and overbase Mannich condensation products of alkyl phenol. Smrcka et al. is making the Mannich condensation product of an alkyl phenol, which is not overbased. Wollenberg is preparing carbamates by functionalizing the amino group. Thus, combining the teachings Smrcka et al.'s method to make Mannich condensation product with Wollenberg's reaction of the amino group with an alkylene carbonate would not result in the formation of a Group II carbonated, overbased Mannich condensation product of an alkyl phenol. A carbamate of a Mannich condensation product of an alkyl phenol is not the same as a Group II carbonated overbased Mannich condensation product of alkyl phenol of the present invention.

Wollenberg is teaching the post-treatment of amine-containing lubricating oil additives with alkylene carbonate, including Mannich condensation products of alkyl phenol. A carbamate results from the functionalization of the amine group. Thus, it involves a further modification of the Mannich condensation product of an alkyl phenol, and is not the making of the Group II metal carbonated, overbased Mannich condensation product of an alkyl phenol itself, as in the present invention.

In summary, Applicants' submit that post-treatment using alkylene carbonate is a chemical reaction that is different from the use of alkylene carbonate to make the Group II carbonated, overbased Mannich condensation product of an alkyl phenol of the present invention.

Claims 6, 10, 14, 15, 19, 45 and 46

The Examiner has objected to Claims 6, 10, 14, 15, 19, 45 and 46 because the Examiner finds they are dependent upon a rejected base claim, but they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In view of the Examiner's suggestion that Applicants' rewrite Claims 6, 10, 14, 15, 19, 45 and 46, and to expedite allowance of the allowable subject matter, Applicants have amended Claims 6, 10, 14, 15, 19, 45 and 46 as suggested by the Examiner.

As suggested by the Examiner, Applicants have amended Claims 6 and 14 to independent form. Amended Claim 6 includes all the limitations of the base Claim 1 and dependent Claims 9 and 10. Amended Claim 14 includes all the limitations of the base Claim 12 and dependent Claims 18 and 19.

Dependent Claims 4, 7-8 and 11 have been amended to depend from the now independent, amended Claim 6.

Dependent Claims 13, 15-17 and 20 have been amended to depend from the now independent, amended Claim 14.

Claim 45 has been amended to a product made by the process of amended Claim 6.

Claim 46 has been amended to a product made by the process of amended Claim 14.

In summary, Applicants have amended Claims 1, 4, 6-8, 11, 13-14, 15-17 and 20 as suggested by the Examiner, thus, Applicant's amended Claims 1, 4, 7-8, 11, 13-14, 15-17 and 20 are patentable over Vaughan and Smrcka et al. in view of Wollenberg.

Allowable Subject matter

Applicants gratefully acknowledge the Examiner's finding of Applicants' Claims 21-44 and 47 allowable.

For the forgoing reasons, allowance of Claims 1, 4, 6-8, 11, 13-17 and 20-47 is respectfully requested.

Respectfully submitted,



Sarita R. Kelley
Attorney for Applicants
Reg. No. 50,850
(925) 842-1538

SRKelley:kec
Enclosures
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